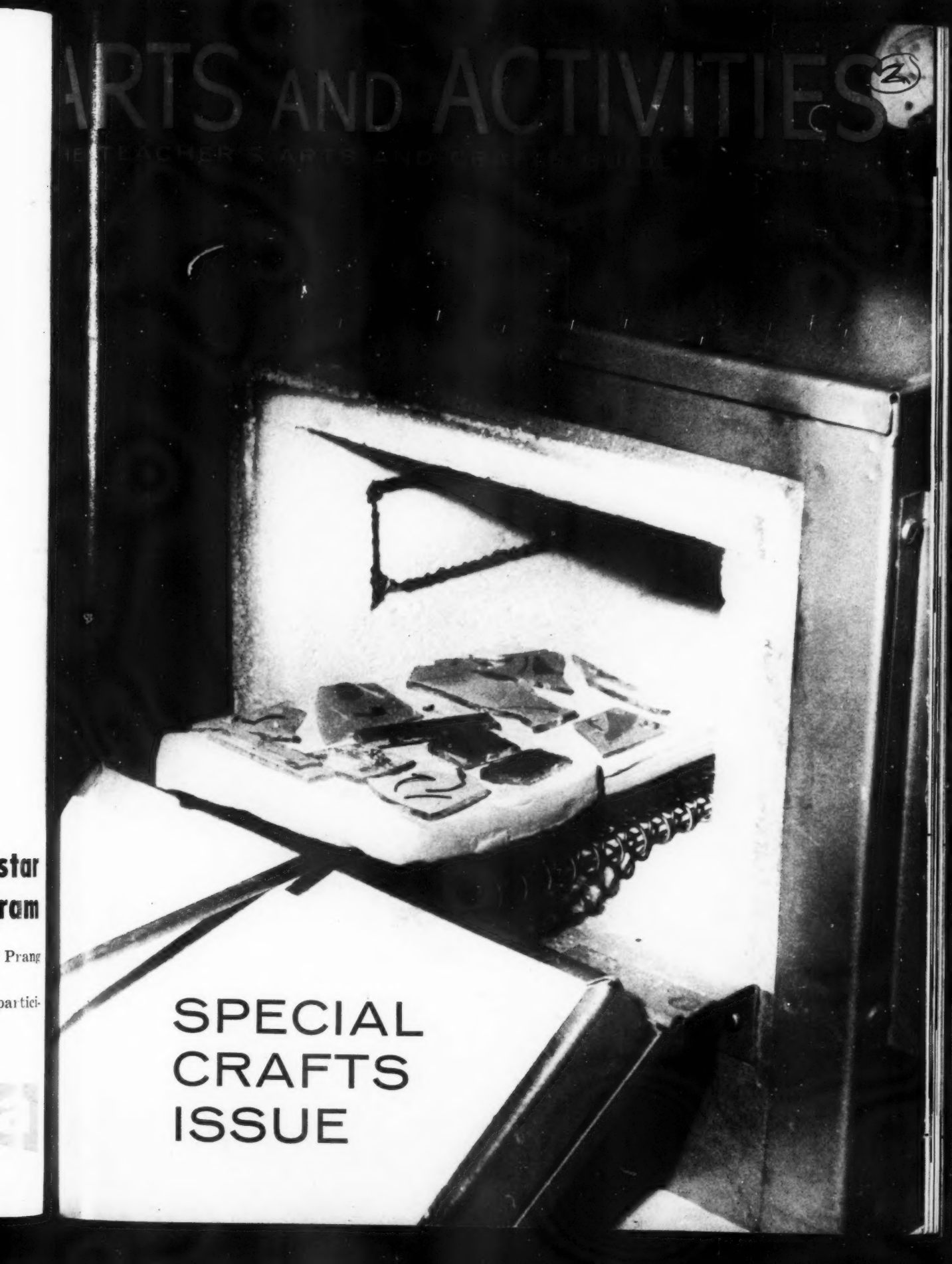
ARTS AND ACTIVITIES



SPECIAL CRAFTS ISSUE

ARTS AND ACTIVITIES

THE TEACHER'S ARTS AND CRAFTS GUIDE

Vol. 46, No. 3

NOVEMBER, 1959

ARTS AND ACTIVITIES is published monthly except July and August. Subscription: one year, $6.00 in the United States and foreign countries. Single copy, 75c. Change of address requires four weeks' notice. Send old address as well as new. Second-class postage paid at Skokie, Illinois, and at additional mailing offices.

ARTS AND ACTIVITIES will consider for publication articles about creative activities for children. Manuscripts and correspondence about them should be addressed to the editor, Dr. F. Louis Hoover, Illinois State Normal University, Normal, Illinois.

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Editorial and Advertising Offices:
8150 N. Central Park Ave., Skokie, Ill.

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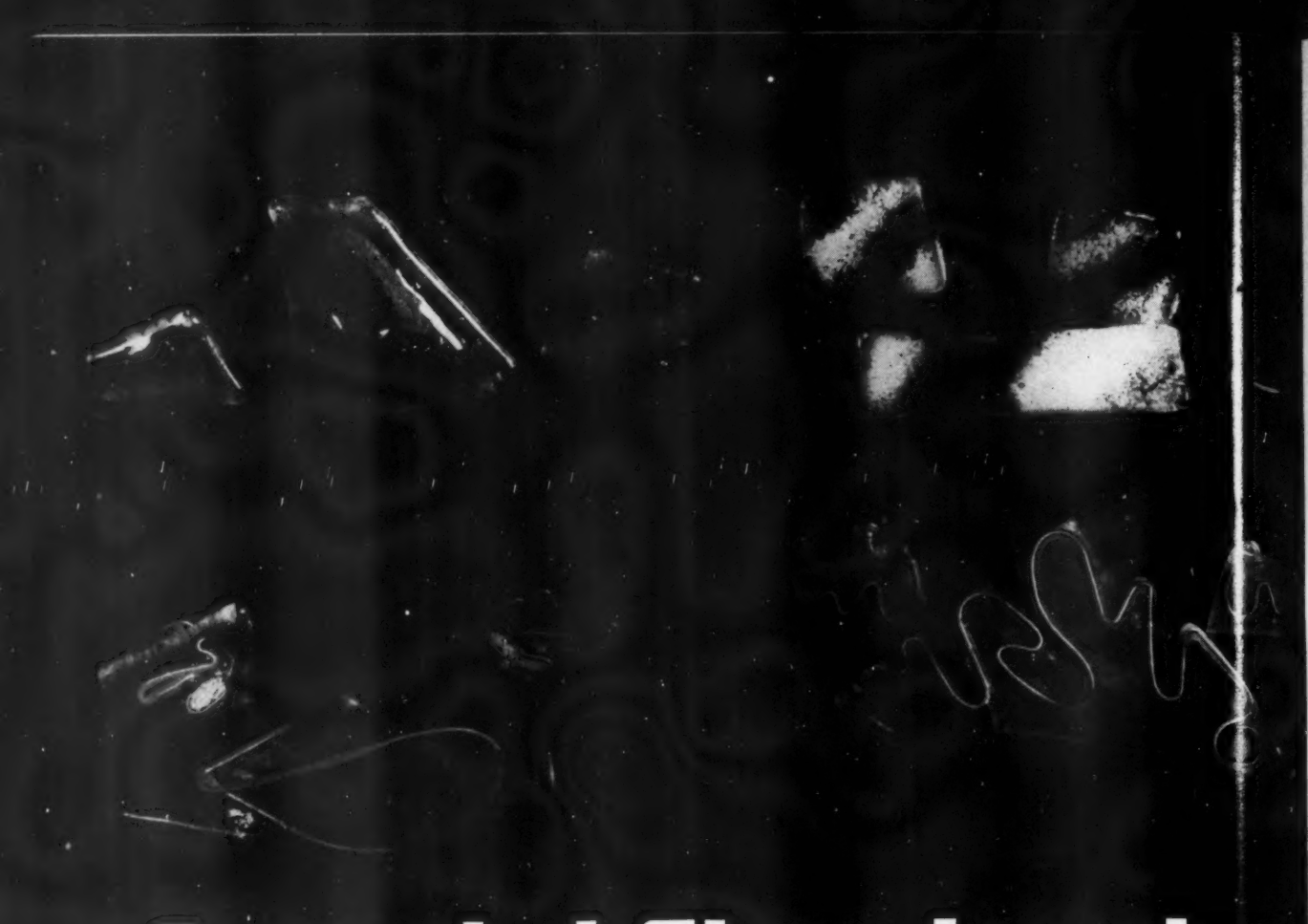


Enameled Glass Jewelry

Specially made for enameling on glass, "ice colors" combine with ordinary window glass to create sparkling jewelry that belies its humble beginnings.

By MABELLE GUTEKUNST
Art and Mathematics Instructor
Flower Vocational School, Chicago, Ill.

Milady and even milord may now be decked out in colorful and sparkling jewelry made from window glass and an enamel specially made for glass. Anyone who has equipment for copper enameling or ceramics and also a little imagination, can create intriguing pins, earrings, pendants, bracelets, cuff links and tie clasps or ash trays.

To get started, we make our own racks for firing the glass. A red or gray clay, or a mixture of grog and clay, is prepared and rolled into a thin slab 3/8- to 1/2-inch in thickness and cut to a size that will comfortably fit into the kiln available. If you're interested in making ash trays, molds of various shapes may also be fashioned at this time. While the clay is in the stoft stage, several vent holes are made in the bottom of the molds and flat labs with a 1/16-inch wire or wooden dowel rod. This s to prevent bubbles from forming under the glass. For ring small pieces this is not so necessary, but under larger nes air may be trapped that on expansion with heat will orm bubbles, thus distorting the glass piece. The vent oles are especially necessary in ash tray molds, for whe the

Equipment for copper enameling or ceramics will also serve for glass enameling except that enamels prepared especially for expansion rate of glass produce best results.

Glass pieces, cutter, tweezers, copper or silver wire, lumps and threads round out materials needed for glass jewelry.

glass slumps into the mold as it reaches softening temperatures, large bubbles usually form and distort the intended shape if the trapped air is not given a chance to escape.

After the clay pieces are thoroughly dried they are bisque-fired at 1850 to 1900 degrees F. and allowed to cool slowly.

A heavy coating of calcium carbonate or kiln wash, either brushed on if in liquid form or dusted on dry, is given to all molds or slabs before any glass is placed on them.

To get started, rack to hold pieces to be fired is cut from clay rolled ⅜- to ½-inch thick and cut to fit kiln. It is vented, bisque-fired, coated with kiln wash.

This is done each time the mold is used to prevent the molten glass from sticking. Care must also be taken to prevent the enamel from spilling around the piece of glass while on the clay mold or rack.

We are now ready to cut and to prepare the glass. Ordinary single-ply window glass is good. This may be obtained as scrap glass from any glass dealer. New glass is preferable to used glass as the latter if too old may shatter when heated. Colored glass may be used but it's not always satisfactory as often a change in color accompanies the heating. The chemicals used to color cheap glass are not always the ones necessary for good stained glass colors.

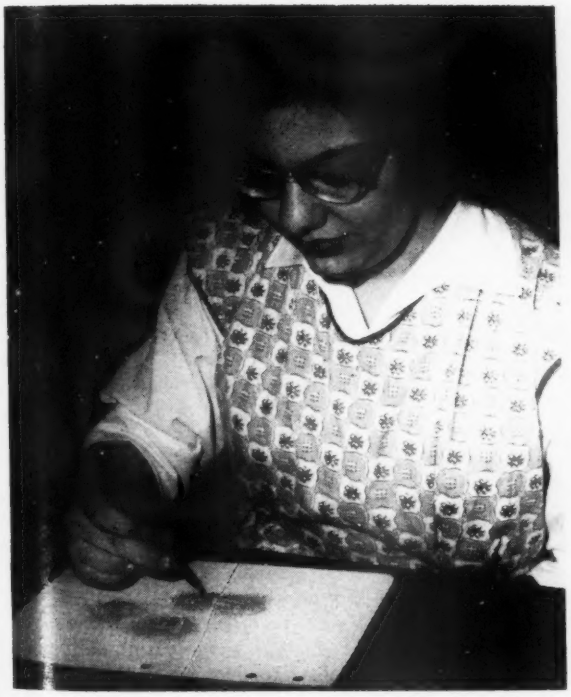
The glass may be used single thickness with the enamel and other decorations on top, or a second layer of glass of the same shape may be placed on top to give more depth to the piece. For earrings, single thickness is heavy enough, but for cuff links, a more massive look is often desirable.

A small glass-cutter is used to cut the glass. It is held with the wheel down and the handle between the index finger and middle finger with index finger in position to exert the greatest pressure. All cutting is done on a piece of carpeting to keep from dulling the cutting wheel as it slides off the edge of the glass. If a straight cut is desired a piece of wood ½-inch or more thick may be used as a guide. Many cuts can be made freehand to get curves and various shapes. A paper pattern may be followed for preconceived shapes. Enough pressure must be put on the cutter to leave a continuous mark. It is best to make just one mark right to the edge of the glass without going over it. A light tapping with the handle of the cutter on the reverse side of the glass usually breaks it on the desired line. With a little practice, good control may be achieved. For precaution against cut fingers, gloves may be worn and little pieces of glass may be handled with tweezers, but I have never had any student get cut on the glass even when not wearing gloves.

Molds for ash trays are made from clay by slab method as is rack for firing jewelry. Centers of tray molds are scooped out and vented to prevent bubbles forming in firing.

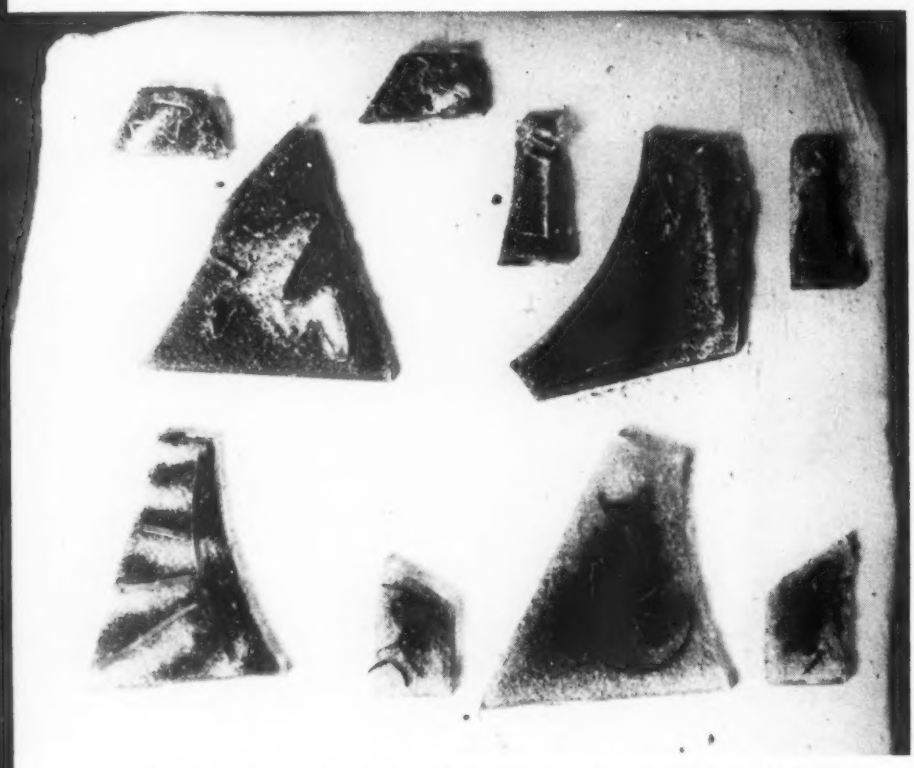
Student coats firing rack with kiln wash so that fired glass won't stick to it. This is also done with tray molds.

Starting on jewelry piece, student cuts glass to shape she wants, works over carpeting so as not to dull cutting edge.



After glass has been cleaned, gum tragacanth or gum arabic is sprayed on it to hold enamel and decorations in place.

Silver or copper wire, flat or bent into design and lumps and threads of glass may be placed over powdered surface.



Placed on slab coated with calcium carbonate (kiln wash) decorated pieces now go into cold kiln. Temperature is brought up slowly with kiln door open at first.

After the pieces are ready the glass is washed in a solution of soap or detergent and ammonia and dried with a soft cloth to remove any grease or finger marks.

The glass pieces are now ready for decorating. Best results are obtained with enamels prepared especially for the expansion rate of glass. Copper enamels may be used but they either crackle or completely crack off on cooling. If they just crackle, the effect can be good, but it is very disappointing to have chips pop off so that the piece is unusable. The Thomas C. Thompson Co. of Highland Park, Ill., supplies "ice colors". These are transparent colors (both high fire and low fire) especially for use on glass. We used high fire colors ground 40 to 80 mesh. Finer and coarser grinds also are available. (See ad on page 38.)

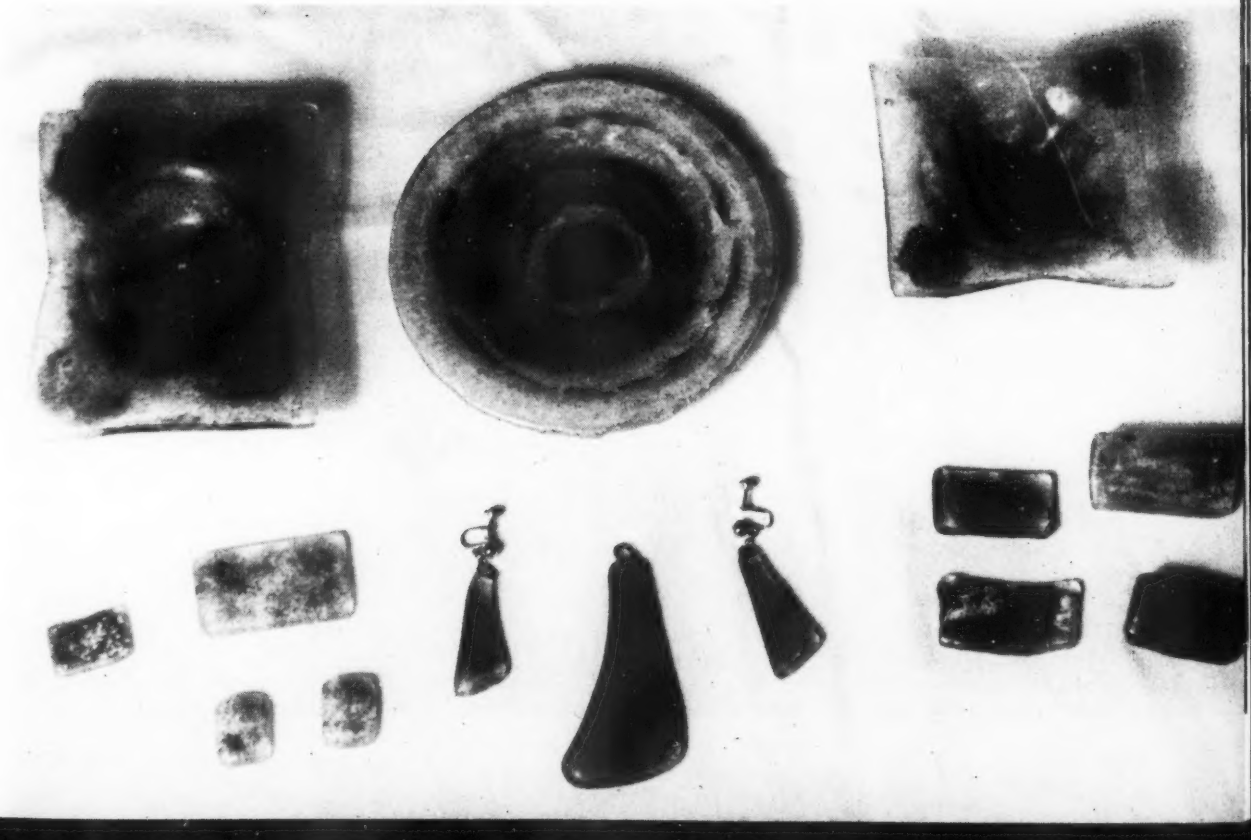
One's own ingenuity will find ways of decorating these glass pieces. A solution of gum tragacanth or gum arabic may be sprayed on the glass first in order to hold the enamel and decorations in place. Round silver or copper wire bent into interesting shapes may be placed on the powdered surface. Simple cloisonné effects may be obtained by filling in enclosures of these wires with different colors. Cloisonné wire may be laid on flat to give a wider showing of silver. Lumps and threads of glass may be used as in copper enameling. Many unusual textured effects may be obtained by laying on smaller pieces of glass to form designs. Color may be placed on top of these extra pieces of glass or they may be left clear. After firing, these pieces are partially melted down but still show a raised surface. A feeling of depth is obtained with the second layer of glass in part or in the total shape. Some students have piled up three and four layers. I like them to feel free to experiment with their decorations. Sometimes we twist round wire, flattened in spots, around the fired piece. The silver wire is more striking if done this way.

For loops for pendant fastening and links of a bracelet, a loop of wire may be allowed to extend beyond the edge of the glass and on heating this wire melts into the glass. If a double thickness is used the two ends of a wire may be held in place between the glass. This will give a stronger loop fastening than anything that could be glued on.

The firing is started in a cold kiln. The decorated pieces of glass are set on the kiln wash coated rack or slab of bisque-fired clay and placed in the kiln before the heat is turned on. The temperature is brought up slowly for best results with the kiln door slightly open to allow gases to escape. A dull surface, due to the etching effect of the gases, will result if ventilation is not given until about 1000 degrees is reached. The door is then closed the temperature rises until the edges of the glass round over and no fresh cut look of the glass *(continued on page 39)*

Student handles rack carefully so that none of designs are disturbed. When proper temperature is reached (without pyrometer, this can be gauged by the rounding over of glass edges) kiln is turned off, door kept closed until it is completely cold, overnight or even 36 hours.

Rough edges may be smoothed with carborundum stick and water, polished with sanding and tin oxide before findings are cemented.



TENDING TO OUR KNITTING

By **FLORENCE JONES HARWOOD**
Third Grade Teacher
Kansas, Illinois

Stephen, an eight-year-old third-grader, is a fast knitter, likes doing it enough to knit at home. Left, two of the girls tend to their knitting in front of blackboard bearing "daily news".

Third-grade teacher shares her formula for constructive "busy work", shows that both boys and girls quickly become deft with tools and materials of homely art.

For several years I have taught my third-graders how to knit, but not until this year did we reach such a high level of accomplishment and enjoyment. It may have been due to the boys in this class. They outdid the girls in effort and numbers and their coordination was every bit as good.

Knitting is as practical as shelling peas. It is constructive work that can be done in every home and school. (And parents always welcome anything that can be done in bed or on rainy days to help avoid too much TV!)

Knitting is as interesting as "shop" or sewing or the knot-tying of Scouts. Children quickly become deft in the use of the needles. It was surprising how many Christmas lists were headed by yarn and knitting needles—and allowances were spent for more yarn. Children who couldn't wait to buy needles did a bit of knitting on pencils, using ordinary string and a little ingenuity.

They learned to do the garter stitch, knitting every row. This year I had two students who learned to purl thus

making the stockinette stitch. Those who ran out of yarn ripped out their knitting and started over—just from sheer love of the "doing". Some boasted they had taught their mothers how to knit. They called each other "knit-wits" and announced they always "tend to their knitting".

These are the simple directions:

(1) After casting on insert the right needle against the front of the first stitch on the left needle from the left side.
(2) Steady the right needle against the forefinger of the left hand. Keep your yarn to the back of the work.
(3) With the right hand bring the yarn over the point of the right needle.
(4) Draw the yarn through the stitch.
(5) Slip the old stitch off the left needle, thus completing the first stitch. A new row is being formed on the right needle.
(6) Always keep pushing the work up so that the stitch in process is near the tip of the needle.
(7) Repeat steps one to five until all the stitches have been knitted off the left needle.

These directions may be found in any handiwork book at dime or department stores.

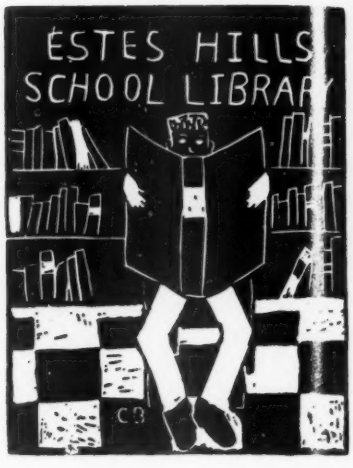
What did they make? Well, it didn't seem to matter much, though some of them made curtains for a doll house, a scarf for a doll and a small rug. The boys did a pretty good job making ties; but mostly they just enjoyed watching it grow. ■

D r Mrs. Harwood,
Thank you for teaching
me ow to knit. Someday I will
ret f you.
Much love,
Suzanne
Hawkins

Author credits boys with level of knitting success described in this article. They outdo girls in effort and numbers and their coor lination is equally as good.

"Just like Gutenberg!"

. . . and in fact Gutenberg printed from cut blocks similar to the linol. ım blocks students use in project that proves rich in art, history learn ıg.



While some students put finishing cuts into linoleum blocks, others ink and print. Design finally selected for library's use appears at right.

By JOANNE M. SNEED
Supervisor of Art
Chapel Hill, N. Car., Public School

"Just like Gutenberg," remarked Arthur as he laid his linoleum block in the small printing press and lowered the handle. Arthur was one of a group of sixth-graders busily involved in making prints of their designs for a bookplate to be used by the school library. This exciting day culminated one phase of a large and satisfying project that extended over several months of the school year.

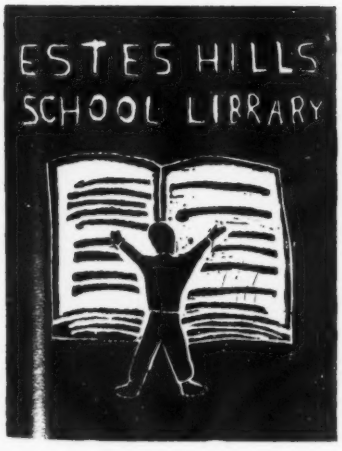
It began in the fall when a parent suggested to the school librarian that our new school needed a bookplate to identify its library books. The librarian mentioned the conversation to the principal and the art supervisor who immediately saw the possibility of an art project. It was also decided that the design would be done in linoleum block since an engraving made from a line print could be utilized by a commercial printer to reproduce thousands of prints.

The art supervisor and the sixth grade teacher prepared the class for the project, discussing the purpose of a bookplate and how it would be reproduced. The group also looked at several bookplates in order to discover the type of design that was appropriate. After the discussion they set to work quietly and seriously drawing their own ideas for a bookplate. Each boy and girl was very much impressed with the importance of making a permanent contribution to the school. The completed drawings gave ample evidence of creative thought, for they represented a variety of ideas about libraries, reading and books.

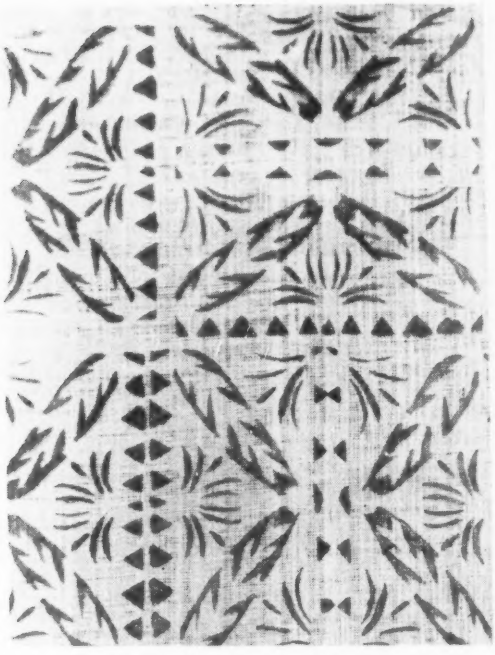
Since time and materials prohibited each child's executing a design it was necessary to select six to be developed into this phase. Linoleum had to be cut and mounted on wooden blocks. A local lumber company furnished the blocks from scrap lumber and the high school shop teacher assembled the two. In the meantime the boys and girls whose drawings were chosen set to work preparing them for printing. Hastily made letters needed improvement and designs had to be reversed. Then came the transfer of the drawing onto the linoleum and the actual cutting. Some of the group had not handled the cutting tools before, but with a little practice they did well.

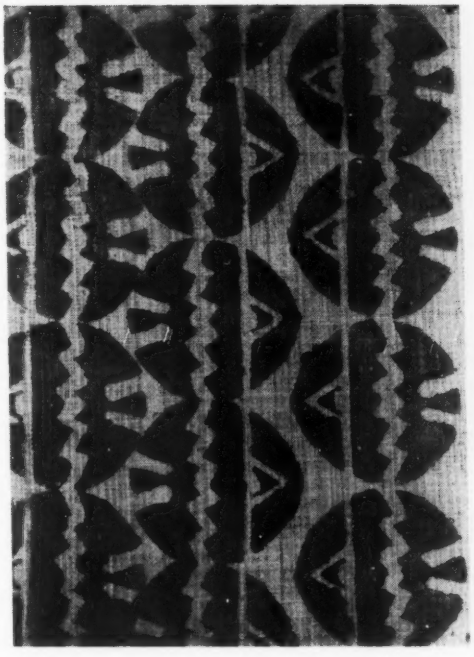
Of this procedure one student *(continued on page 35)*

On field trip students watch press turn out bookplates by the score. Amazing speed of press excites them but they recognize that process varies little from printing by hand.



Art supervisor sets stage for simulated bark cloth activity with display of Hawaiian designs in cloth and art objects that show influence of Pacific art all around us.





THE POLYNESIAN INFLUENCE

Simulating bark cloth designs highlights social studies unit that brings into fold our 50th state.

By AUGUSTA M. SCHREIBER
Art Supervisor
Littleton, Colo., Public Schools

Twangy Hawaiian music and children's soft laughter urged the passerby down the halls of Centennial School (Littleton, Colo.) to share the goings-on in Mrs. Tegtmeyer's sixth grade. A quick glance into the glass-walled schoolroom revealed lei-bedecked youngsters moving to music as they offered their guests pineapple punch and invited them to view the objects they made in connection with their study unit on Hawaii. Posters, bulletin boards, pictures, books, displays and notebooks spoke loudly of their keen interest in their recent study. The simulated bark cloth patterns on the display boards started them toward the knowledge of Polynesian design which eventually contributed to designs on the cloth of which their teacher's skirt was made.

It all began several months prior with the teacher's desire to include a meaningful art experience in her plans for a Hawaiian unit. She consulted the art supervisor and the following project emerged.

Dauber in hand, student lifts stencil to note results. Color used is ordinary shoe polish.

Boy cuts his stencil from calendar paper, tests it with pencil rendering to see if any improvements are needed.

First it was suggested that the art follow the general st dy of the subject by at least a week in order to enable the children to build a store of common experiences. Thr gh an opaque projector pictures of Hawaii were flashe on a screen from books, magazines, and picture files. The social studies textbook was followed as is usual. A ew days later the art supervisor set up a display of Haw ian art objects and clothes with the cooperation of the tea her and friends in the community. There were also clipp gs from the local papers advertising fabrics for clo es, draperies, and hatbands of Polynesian design. Suc an experience in gathering material gives potent indic ion of how far the art of the Pacific has reached aroun the world to influence our own community's taste.

The next step was to go through a book of fine p to- graphic reproductions of Polynesian art with the chil en. We used *Oceanic Art*, 96 photographs by Friedrich ew- icker, with text by Herbert Tischner (Pantheon Books, New York, 1954). The book has in it some aspects of Polyn ian art we considered too mature for children so certain p ges had to be clipped together. The joy of the childr in seeing the marvelous masks, figures, and designs was worth the trouble of showing them this book select vely a few pages at a time. This step could be facilitate by use of the opaque projector.

The strong emphasis on abstracted *(continued on pag 38)*

Delighted with design, youngster also has gained new understanding of Hawaiian influence on decor. He has learned to discern Polynesian motifs that influence his own tastes.

BEGINNINGS ARE IMPORTANT

By F. LOUIS HOOVER

"Beginnings Are Important" was the title of the National Kindergarten Art Show which opened last April simultaneously in eight exhibition places* in the New York City greater metropolitan area. The show sponsored by the National Kindergarten Association was in commemoration of its half century of work to stimulate interest in and legislation for kindergarten education. It is interesting to note that in 1909, when the Association was incorporated, only one five-year-old in nine attended kindergarten. Today, one out of every two children of kindergarten age is in school.

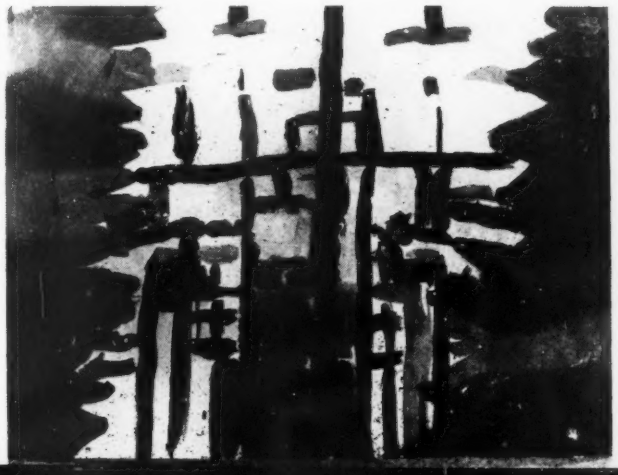
Response to the invitation to participate in the show was all that the Association had hoped for. Over 13,000 pictures made by five-year-olds in kindergartens in 45 states were submitted. Final selections were made from several points of view—child development, pictorial interest and artistic merit—by a jury composed of Miss

Barbara Crooks, age 5, Vista, Calif.

*Exhibition Places

New York Public Library
Metropolitan Museum of Art
Brooklyn Public Library
New York University
Bankers Trust Company
Newark Public Library
New York City Board of Education
Bank Street College of Education

Juniper Tweedy, P. S. 122, Brooklyn, N. Y.



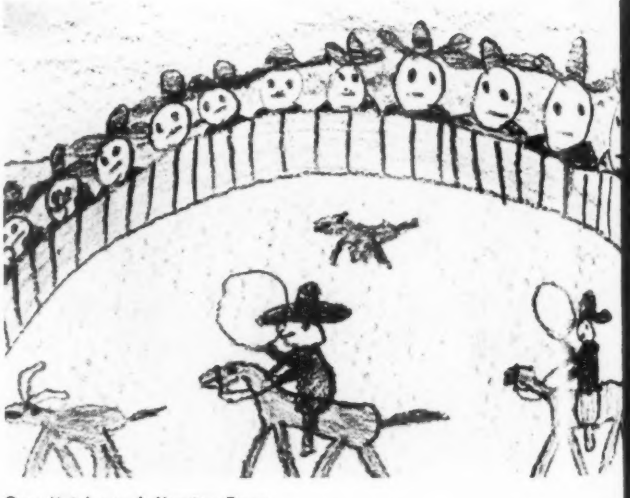
Maria Cimino, Mr. Victor D'Amico, Mr. Ralph M. Lordi, Miss Lois Lord, Miss Olive Riley and Professor Hale Woodruff.

Regional differences in what the children painted and drew were not as great as might have been expected. Children in Alaska painted snowmen, but so did children in California and Florida. And everywhere, it seemed, five-year-olds painted houses and Mommy and Daddy and the sun in the sky and fire engines, as they always have. There was only one painting of a rocket, recognizable as such, from Glendale, California. The pictures showed that the children not only painted and drew the things they saw around them but also what was in their minds and how they felt about things.

Only from several schools on Indian Reservations, where first schooling is on a kindergarten level, was the subject matter completely indigenous to the children's surroundings. Wrote one teacher from the

Mary K. Bradford, age 5, Wichita, Kans.

Maria Stapleton, Illinois: "The Fire"



Gary Motal, age 6, Houston, Texas

George Jones, P. S. 94, Bronx, N. Y.

Brenda Kelly, age 4½, Washington, D. C.

Jemez Pueblo in New Mexico, "My beginners enter school with no knowledge whatever of the English language, so I stress art as a means of communication and self-expression. They draw upon their own experience and the communal life of the village, their religious ceremonies and home life."

Letters that accompanied many of the pictures revealed the difficulties of kindergarten attendance in some localities. From Sitka, Alaska, Mrs. Ada Scrivner, kindergarten teacher, wrote "One of the kindergarten classes comes from the nearby island of Mt. Edgecomb. They ride a bus to the dock, embark on a boat to cross the channel and take a taxi to school."

From Adak in the Aleutians, Miss Loraine Dye wrote, "Buses pick up the children at their doors—driving up to the door on stormy days where an extra man carries small children to and from, because the wind has been known to pick them up . . . They *never* miss school." ■

JUNIOR ART GALLERY
FOR YOUR BULLETIN BOARD

My interest in enameling began way back when I was still attending elementary school. It didn't interest me too much then because I was only in third grade and didn't know much about it.

When enamel work occurred in my life the second time, I was in the sixth grade and it aroused my interest a little more.

My father owns a Chinese gift shop, which happens to sell merchandise made of enamelware. I began to spend some of my time examining the workmanship of the enamelware. I found it very interesting.

When I reached my second year of high school, various techniques of art work aroused my interest so much that I decided to make art my major subject in school. In my jewelry class, I learned the different techniques of enameling and also had the chance to do enamel work on other material besides copper. I worked with different metals and also did some work in soldering and with the lapidary equipment. I then took a special art course and enjoyed doing different kinds of painting and using various media. I enjoyed doing craft work too. I intend to become an art teacher or a commercial artist.

Rhodora Yee

Age 18, Grade 12A
Flower Vocational High School
Chicago, Illinois

Let clay light up your art program. For simplicity, smell, feel and responsiveness, it has no parallel.

The Clay's the Thing

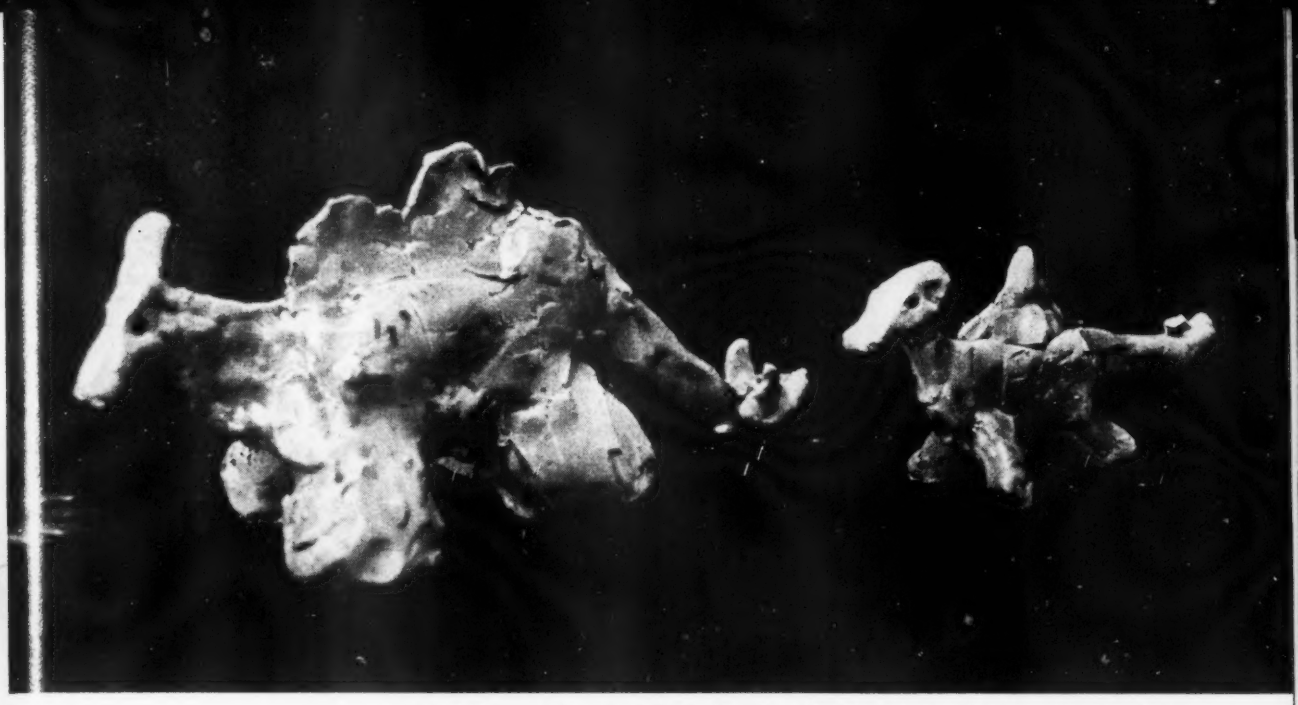
By FRANCES PICKENS
Art Teacher, Mamaroneck Avenue School
White Plains, N. Y.
Carol Hayden, Art Supervisor

The exclamations of satisfaction and delight of eager sixth-graders as they thrill at seeing and touching their first glazed pieces of clay sculpture are valuable rewards for any teacher. It is exciting to lead and direct eager youngsters' clay experiences from a rough, formless clay lump to the completed sculpture of a human figure, animal, bird or sometimes abstract object. Clay, with plastic qualities different from any other material, inspires sixth-graders to plunge into their work with enthusiasm and zeal.

When we began clay work we spent several art sessions solely manipulating and experimenting with the clay. Some pupils would struggle to learn to make the clay do what they wanted, but after much pushing, mashing, cutting, pinching, patting or carving, most youngsters would suddenly find a personal method of making the form and texture they wanted. Some children seemed to have the facility for making desired forms immediately when they began to handle the clay. Other pupils found that they could express themselves better in clay than other materials, while a few pupils seemed to have an endless struggle in finding a method that would produce satisfactory results. All the students were fascinated with clay and many came before and after school to do extra work.

To develop interest and challenge in our undertaking, several methods of constructing clay sculpture were demonstrated. These were pinch method, carving and adding, coil method, slab method and the use of clay slip. The students were intrigued to see forms of a person or animal emerge from a lump of soft clay merely because of pinching, pressing, or

Sixth-graders like to work side by side sharing common art experiences, helping each other from time to time. They spend first sessions mashing, pinching, patting, smoothing, carving. Soon formless lump starts to take shape, below.



One sixth-grade boy models family of prehistoric animals. It was suggested that students use two or more figures in a composition, but few of them took this up.

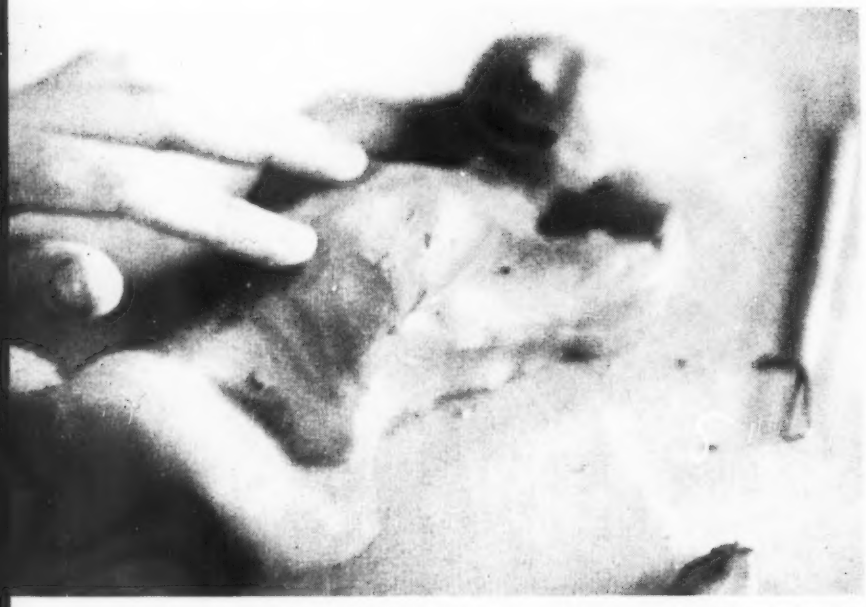
pushing the clay in the right places. The next sculpture was carved from a rectangular mass of clay by using ice cream sticks, some clay tools, and paring knives.

Finally, the coil method was shown. Coils of pliable clay were stuck together with clay slip (clay and water mixed to a cream consistency). Large coils were bent for legs, body and head and smaller coils were used for arms. This method particularly amused the youngsters as we could quickly make the sculpture sit up, lie down or do various acrobatics.

The pupils were encouraged to use two or more figures together in a composition but this didn't seem to appeal to them.

Various clay methods should be demonstrated. Shapes cut from clay slabs may be bent into interesting sculptures.

Parts made by coil method are joined with slip (clay mixed with water to consistency of cream). For greater strength, parts are kneaded together at joining with clay tool or small wooden stick.



Body parts are carefully formed into expressive pose while clay is flexible. Some children seem to have facility for achieving desired effect on first try.

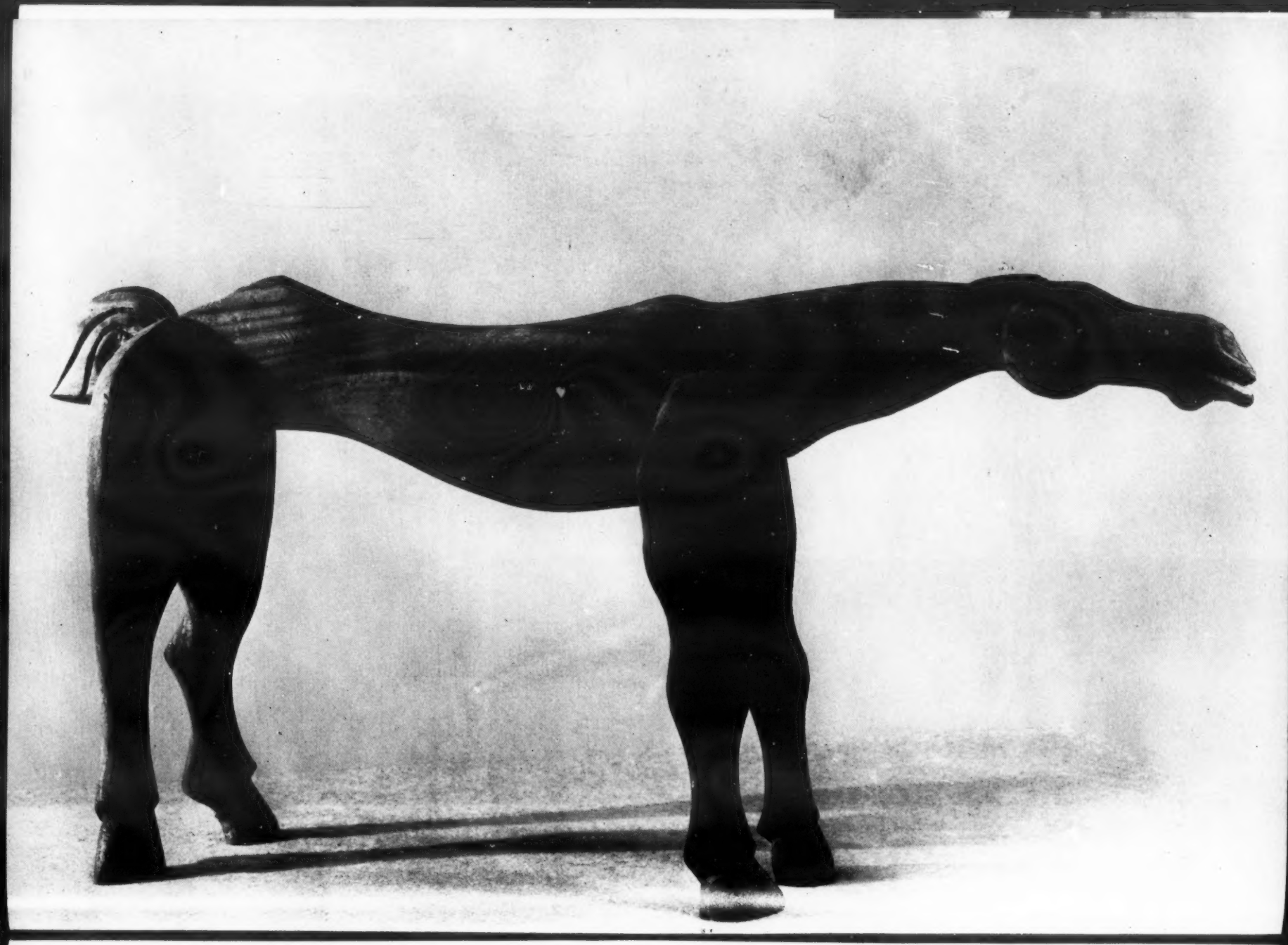
Student finishes piece by adding interesting texture when general shape of sculpture satisfies his aim. Simple and effective details may be put in with wire loop or stick.

With a rolling pin, a semi-flattened mass of clay was rolled approximately ¼- to ⅜-inch thick on a damp cloth in preparation for construction by the slab method. The shape of an animal's skin or the shape of a person similar to an outline drawing was cut from this slab of clay.

If the clay was the proper stiffness, the shapes were bent into interesting positions and left to dry. Otherwise, the shapes were bent and supported with wads of paper. The pupils were expected to finish each sculpture by adding interesting details—texture, indication of clothing, facial expression or hair—with modeling tools or ice cream sticks.

The vocabulary of ceramics was used to identify methods, tools and materials as they were introduced. Pupils learned the meaning of three dimensions as we defined the word *sculpture*. They learned that *(continued on page 40)*

Eternal head-stand of wax-finished acrobat demonstrates student's skill in balancing material. Lady at right wears fancy dress and necklace that emphasize sixth-grade girl's growing preoccupation with personal adornment. Below, detailed figure on left and less complicated one, right, illustrate diverse stages of development among sixth-graders.



Alexander Calder—THE HORSE (1928), boxwood, 34¾ inches long

ART APPRECIATION SERIES
FOR YOUR BULLETIN BOARD

A boy, a pocketknife and a piece of soft wood can be the ingredients of a most successful creative art project. A generation ago, whittling was a favorite pastime for many youngsters. Today wood carving is again becoming a popular activity in the art program. White pine and redwood are available from local lumber yards. They can be easily carved either as one-piece sculptures in the round, or figures and animals can be formed as separate pieces and the parts fitted together as for this horse by the famous American sculptor, Alexander Calder.

Alexander Calder is known primarily today as the inventor of the mobile. But years before he developed sculpture that moves in space, he worked directly in wood and other simple materials to produce witty and amusing works of art.

The Horse was carved of boxwood in 1928. Boxwood is a hard, fine-grained wood often used for wood engravers' blocks, musical and mathematical instruments. However, it isn't necessary to choose such hard woods to work with in the classroom. Soft woods are faster to carve, there is little danger of accidents, and the finished products can be very effective.

Why not encourage the boys in your classroom to start wood carving? Let them choose their own subjects, of course, but stimulate their imaginations by suggesting animal or figure forms that do not run toward stereotypes. Rule out the usual Scotties, ducks and rabbits.

Emphasize a form that has more variety of shape and that will permit a more personal type of expression. Animal and human forms may be simplified with typical characteristics exaggerated to achieve more expressive forms.

The Horse is an excellent example to study. The lean bony structure has been greatly simplified and exaggerated. No effort has been made to reproduce the animal's surface textures except for the whimsical suggestion of hair in the horse's tail. Each shape is subtle and handsome and they all work together to make a rhythmic unit.

Let's try carving!

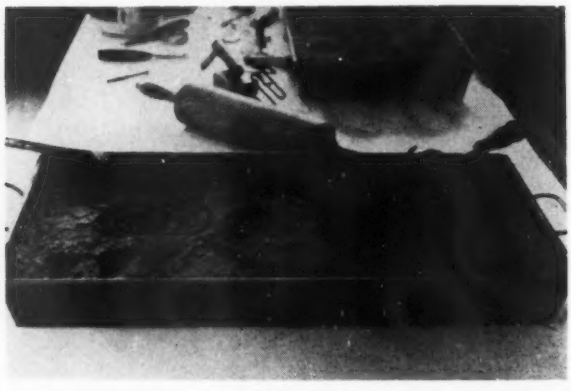
The Horse
is reproduced through
the courtesy of the
Museum of Modern Art

A Leaf from the Police Blotter

Students' interest in sand casting heigh ns when they learn that police departments se similar process in taking plaster impressi ns.

By NORMAN E. SL CK
Art Supervisor, Springfield S ools
Battle Creek, Mi gan
Photographs by Charl Link

1 Process demands only simple materials: plaster of Paris, wet sand, tools to make impressions, paint, sandpaper.



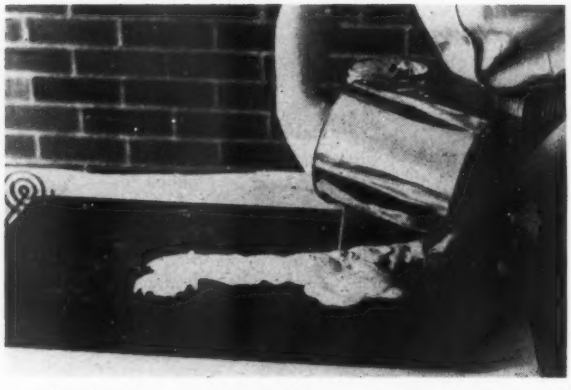
2 Curvy potato masher, spike and human thumb contribute to non-objective design. Possibilities are limitless.

The method employed by police departmen to take plaster impressions of tires or footprints ro-vides teachers with an absorbing and rewa ling project for their students—the interesting cra of sand casting.

Only simple materials are required: wet sand. clay or snow, any implement that will make an im pres-sion, plaster of Paris, and paint, sand pape or steel wool according to individual taste. Add to this a good sprinkling of imagination and you have everything you need for sand casting.

If you want more than one mold of the same design, it is best to use modeling clay, but we have found wet sand the simplest easiest casting material. Snow presents a problem in that the chemical reaction in the hardening plaster produces heat and melts the snow.

Impressions are made in the wet sand with any implement—from finger to can opener. Cut glass, brass or copper wire may be inserted in the sand at this time along with any other available scrap



3 Chemical reaction in hardening plaster dictates use of wet sand or clay for mold—although snow will serve.

4 While plaster is wet, loops of wire or paper clip are put in to facilitate hanging. Plaster might be co ered.

Colorful plaques have displaced usual drab signs denoting classrooms in one Michigan high school. The typing room insignia is mounted on plywood covered with natural burlap.

5 Plaster hardens in few minutes and piece is carefully removed, excess sand washed off. As finishing touch it is highlighted with sandpaper, steel wool, paint.

materials. As you can see, imagination and ingenuity have free reign in this part of the project. It should be remembered here that everything put into the sand will be raised up in the finished work.

Plaster of Paris is then poured into the mold and while still wet, paper clips are put in to facilitate hanging. If an overall color is desired, powder paint may be added to the plaster before pouring. The plaster hardens in a few minutes, after which the piece is carefully removed and washed of excess sand. As a finishing touch, areas may be highlighted with sandpaper, steel wool or dashes of paint.

The technique of sand casting, besides being interesting and fun, can produce some very useful by-products. One high school group denoted classrooms by making colorful plaques to replace the usual drab signs. For mounting the plaques, they used plywood painted a contrasting color or smartly covered with burlap, denim or plastic screen. ■

Plaque for speech room is mounted on painted plywood. Home economics room wins plaque that came from casting of actual implements associated with cooking. Mount is painted.

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We honestly believe once you start using ARTS AND ACTIVITIES in your classroom, once you see how eagerly your children respond to this basic teaching tool, you won't want to be without it. That's why we're willing to send you the next issue at no cost to you. You get the next issue of ARTS AND ACTIVITIES free with your trial subscription — and you take no risk! If you're not completely satisfied, just tell us. Keep the free copy for your trouble and we'll immediately refund your payment in full. This is your opportunity to get real constructive help at low cost.

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BOOKS OF INTEREST AND AUDIO-VISUAL GUIDE

By IVAN E. JOHNSON
Professor and Head
Department of Arts Education
Florida State University, Tallahassee

RESEARCH IN ART EDUCATION 1959, the Ninth Yearbook of the National Art Education Association, 1201 16th Street, N.W., Washington, D. C., 1959, $3.50.

The Ninth Yearbook of the National Art Education Association, *Research in Art Education 1959*, is an important professional contribution to art and education. As Editor Jerome Hausman points out, it reflects the diversity of concerns that are current in the field of art education. He also might have added that the unwritten but implied intent of the researches was to improve the teaching of art (and to explore the nature and meaning of man's creative art experience). There are those, Hausman observes, who feel that the emphasis on research will detract from the recognition and status accorded studio activity in art education. What a pity it is that some believe that creative action for the art educator is confined to the studio. As one reads *Research in Art Education 1959*, he is conscious of the deep concern its researcher-contributors have for creative action in the studio, that the meaning in studio activity is greatly deepened and enriched by research.

The Yearbook is a compendium of representative reports selected by the Research Committee of the National Art Education Association. These researches are grouped under five headings: philosophical-psychological research, research into creative behavior, research into the teaching process, surveys and descriptive research, and research into problems of teaching handicapped and exceptional children. It would be imprudent for this reviewer to cite one research as more important than another, for the "proof of the pudding" is in the values perceived by its art educator readers. Obviously, some of the reports are more truthfully research than others; some are more significant in their findings than others. There are instances where there is a similarity in research design and purpose. Vincent Lanier, in one of the Yearbook's commentaries that follow each group of researches, suggests an "IGY Year" for the field of art education. In other words, if closer communication on research could be obtained, less duplication and more reinforcement would occur. One of the greatest values of *Research in Art Education 1959* is that it can well be an instrument of communication. The Yearbook will also move us toward even greater research maturity. The National Art Education Association fulfills its professional promise with its research Yearbooks. All education, not art education alone, is served by them.

ART IN EDUCATION by Howard Conant and Arne Randall, Charles A. Bennett Company, Peoria Illinois, 1959, $6.00.

Few nooks and crannies are left unexplored in the teaching of art in the public school in *Art in Education* by Howard Conant and Arne Randall. Every problem from a prospective art teacher's personal grooming to the selection of art room furniture, seems to have been touched on. Conant and Randall have organized their text so that the art teacher-in-training becomes oriented to all the aspects of teaching art in a public school it might be called a handbook for art educators.

The stage is set at the opening of the book by a visual preface, which points up the role art plays in our lives. In the first chapter, the authors lead off with a discussion of the charactertistics of a teacher of art. This is followed by data on art teacher preparation, placement, graduate study and professional art education organizations. There are sections on philosophy and method in art education which are concisely presented. Young art teachers-to-be will find in *Art in Education* an introduction to evaluation and growth measurement in art.

Perhaps the greatest value of *Art in Education* lies in the manner in which it has brought together information that has not appeared in print before, or that is difficult to obtain. A good example of this is the classic evaluation chart, "Which Type of Program Is Yours?" by Howard Conant and Clement Tetkowski, or Denver's remarkable curriculum material on "Growth Through Art". Among the other kinds of information are the lists of art materials and tools; art publications for use of the teacher and student; sources of exhibits and films; and art programs for exceptional children.

As interesting as this information may be to the art teacher in training, one wonders if some of it may not readily become dated. Conditions are changing so rapidly in the teaching of art, the author of an art education text usually confines himself to the not so-transitory philosophical or methodological aspects of the field.

The exceptionally well-chosen bibliography in *Art in Education* is very useful. Conant and Randall conclude their book with a description of an assignment given to future art teachers entitled "Artopia". In such an assignment, the student is asked to describe an ideal community from an art education standpoint. The condition suggested in the assignment (which is quoted in the conclusion) reveals that art in such a "dream

community is interdependent on idealistic conditions in all phases of community life and requires resourceful art teachers of exceptional competence. Conant and Randall chose this as a fitting departure point for those readers who are art-teachers-to-be.

■ ■ ■

A. V. INSTRUCTION, MATERIALS AND METHODS by James W. Brown, Richard B. Lewis, Fred F. Harcleroad, McGraw-Hill Book Company, Inc., New York, 1959, $6.80.

The average book on audio-visual instruction is usually so devoid of creative ideas as to be suspect in the eyes of many art educators. "Display for Learning", by Edgar Dale and Marjorie East, was one of the first books on A. V. instruction to show imagination and understanding of the creative approach to art. And now, the new book by Brown, Lewis and Harcleroad, *A. V. Instruction, Materials and Methods* is sure to be found interesting to those who teach art.

Of its many virtues, the emphasis on the nature of learning rather than content to be learned is praiseworthy. To be sure, there is a concern with the *things* of learning, i.e., books, filmstrips, etc. Messrs. Brown, Lewis and Harcleroad point out that "The end is not so important as the experience of solving the problems to reach that end. Put more emphasis in constructive activities upon the *process*. You must recognize that to capitalize on constructive activities, a teacher must himself have and use an inventive, creative approach to teaching."

Stunning color and handsome layout make *A. V. Instruction Materials and Methods* a most attractive book. Because the book is encyclopedic, it could well have been broken into two parts—for example, a section on Learning and Communication and one on the Materials of A. V. Instruction. A wide range of A. V. Materials and methods are presented, primarily to illustrate variety and inventiveness of means. In a number of places, illustrations of effective as well as dubious material are captioned with provocative questions to cause readers to evaluate them and to relate the illustration to a point made in the text. *A. V. Instruction, Materials and Methods* is proof than an audio-visual text (even if it is voluminous) with a creative approach can be done effectively. ■

SHOP TALK

No Kiln? You can make permanent modeled objects without a kiln if you use Mexican pottery clay. A new five-pound package of this self-hardening clay has just been announced by American Art Clay Company. It hardens at room temperature and modeled objects retain a rich red color similar to Mexican and Indian ware. You'll find that your students will turn out many pieces that need little decoration other than modeled detail, but as a decorating medium regular school showcard colors work fine. For information about this and other AMACO craft clays, write No. 131 on your Inquiry Card.

The paper lithography article published in our September, 1959 issue ("Stone Age Departed" by Stanley Drabinowicz) has been received with great enthusiasm and interest throughout the country. Mr. Drabinowicz described the LITHO-SKETCH process which completely eliminates the heavy stone or metal plate customarily used in lithography, substituting a specially treated paper plate. The drawing materials remain the same: litho crayon, pencil or touche. These tools deposit areas or lines of grease on the paper plate as easily as on stone or zinc. The LITHO-SKETCH process now simplifies lithography to a degree where it becomes practicable for any classroom from the elementary level through college.

In addition to the simplicity and economy with which large numbers of professional quality lithographs may be turned out, there are certain other advantages to the new process that are of great concern to the classroom teacher. Noteworthy among these is the fact that no toxic or corrosive solutions are used in any step of the process, thus rendering it completely safe. For further details of this fascinating new development and prices on the materials, write No. 124 on your Inquiry Card.

CRAY-PAS are new sticks of color that have the vividness of pastels and the cleanliness and ease of use of crayons. CRAY-PAS colors give the true brilliance of pure pigments with the depth and luminosity of oils. Ideal for sketching, they can be blended on the paper with fingertip or stump without muddying. Further, these colors apply smoothly and evenly and lend themselves to a variety of techniques to get the effects of washes, resists or scratchboard. Their excellent opacity produces clean bright work and it is never necessary to use a fixative on CRAY-PAS drawings as the colors do not dust or "chalk" no matter how heavily they are applied. For more information and prices, write No. 125 on your Inquiry Card.

A new aid to purchasing contains simple, practical tests to determine the suitability of art materials for classroom use. It is a new revision of the Crayon, Water Color and Craft Institute's booklet "Make the Most of Your Color Materials Budget". The tests were designed particularly to assist teachers and officials who may not be artists or technicians in the art field, but who have the responsibility for selecting color materials. The Crayon, Water Color and Craft Institute, Inc., as a public service conducts a rigidly supervised certification program which assures that all products bearing its Certified Products Seal meet quality specifications and non-toxic requirements. The new booklet treats wax crayons, pressed and semi-pressed crayons, water colors, liquid tempera and powder tempera, chalk crayons, oil modeling clay and finger paint and its discussion of media is an education in itself. You may have a copy of this valuable informative booklet free by writing No. 126 on your Inquiry Card.

When KUTRIMMER was introduced last year, its outstanding feature was cutting up to 50 sheets in one operation. Now a new and larger model (32-inch) of the combination paper cutter and trimmer has been

brought out that is heavier and can cut stronger materials, such as linoleum and very heavy board. Unique to the KUTRIMMER is a hand clamp or foot treadle that insures precision cutting of stock such as photos and photo negatives, carbon paper, foil, rubber, felt, thin plywood, leather, fabrics and thin soft metal. KUTRIMMER possesses devices never before found on paper trimmers: a measuring device for multiple cuts and on the table model a hand clamp that can be swung aside in seconds when necessary for special cutting. Its knife is of high quality steel tempered to give the highest cutting efficiency.

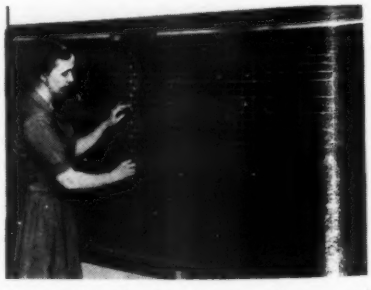
KUTRIMMER is available in four sizes, ranging from 14⅜ to 32 inches. The 28-inch and the new 32-inch also come as treadle-operated floor models complete with stand. For complete information and descriptive literature, write No. 128 on your Inquiry Card.

Furniture of contemporary design increases both beauty and efficiency in the classroom. A multi-use stacking desk, available in five heights and featuring an extra-large work surface, is one of the newest items to be introduced to the school ma et. The movable stacking desk in Scandin an modern styling (see cut) features a 2(24-inch top, unbroken by pencil trough, a 169

cubic inch capacity book shelf and a ex- clusive parchment pattern plastic top. For more information write No. 129 on our Inquiry Card.

A Minnesota teacher gets the credit or a new teaching aid that is so obvious in its usefulness and so simple in its design ou'll wonder why you didn't think of it. C lled the T-RULE, the device can be mo nted permanently on any chalkboard in even minutes. It resembles a T-square mounted on a track, movable across the chalkboard surface and adjustable to any angle. Using it, a teacher can rule parallel lines verti ally, horizontally or at an angle. A bookkeeping form that might require 15 minutes for ruling with a yardstick can be drawn in 1½ minutes with the T-RULE. It is similarly useful for producing visual aids in shop, geometry, music and art classes.

The first T-RULE was made in 1954 at the suggestion of Mrs. Lee Anderson, a bookkeeping teacher in the Milaca, Minn., High School. Her husband, a shop teacher in the same school, designed the device. Favorable comments and requests from other teachers caused the pair to refine the T-RULE for commercial production. The device was shown at the 1958 Minnesota Teachers Convention and since then more than 400 T-RULES have been installed in other Minnesota schools.



Increased production is now under w and T-RULES are immediately available less than $25, believe it or not, complet with eight feet of track. For informati on where to get yourself a T-RULE, wri No. 130 on your Inquiry Card.

Rently introduced to the school market is a ise designed to serve wood-working and met -working students as well as those in art and crafts. The new tool thus allows ind trial arts instructors to introduce more sul cts in the same shop. The economically riced vise also features offset wood-wo ng jaws to permit vertical clamping of lon pieces, a socket for holding art metal any , a dog in the front jaw, removable met -working jaws and a wooden handle. For urther information write No. 127 on you Inquiry Card. ■

G tenberg

(co inued from page 12)

sai "I was deeply impressed by the tim it took to draw the design, transfer it to the linoleum and then carve it out It took time and patience."

The day the six made the first trial pri s, the whole class watched with kee interest. Seeing the results of their hou s of work was rewarding.

The project had gone well and the clas room teacher, the art supervisor and the librarian were pleased, but again the problem of selection presented itself. For the decision as to which would become the official school bookplate, competent outside help was needed. Two townspeople, both of whom formerly had been art teachers, consented to act as judges.

Since the children's blocks had been made proportionately larger than the final bookplate would be, it was necessary to take into consideration the effect reduction in size would have on the design. By means of photography the two final choices—Robert's and Carolyn's prints—were reduced, and it was decided that Carolyn's design was better suited for the bookplate.

When the sixth-grade boys and girls received the news, they were pleased with the decision. Needless to say, the other five who had worked so diligently on the project felt some disappointment. However, by this time the whole group was engrossed in a different but equally interesting project: making linoleum block designs to print on small silk scarves.

Learning about the historical development of printing added another dimension to the group's work. Through their social studies they became aware of the ays when all books were written and illustrated by hand. They learned of utenberg's printing press which utilized cut blocks similar to the linoleum blocks they were using. When the class visited one of the town's printing shops, the boys and girls saw a modern press in action. The visit had dual significance, since at the time the Estes Hill School's bookplates were being printed.

One of the group said of the field trip, "We were all surprised to see how fast the printing machine worked. For us, printing by hand was a long process compared to the amazing speed of this large machine. It looked very complicated but had the principal ideas we used in printing."

"I liked the press," said another, "because it was fascinating to watch the rollers roll on the ink, and the little arms feed the machine paper and take away the paper that was already printed."

Seeing the library bookplates being printed in dramatic black on white by the printing press concluded a project rich in learning. It had taken several months to complete, but it proved to be rewarding for the whole school as well as for the teachers and children who carried it out. ■

PROFESSIONALLY SPEAKING . . .

ALEX L. PICKENS
Associate Professor of Art Education
University of Georgia, Athens

■ If you have the urge to practice your profession while you see the world the time is at hand really to begin to do something about applying for that overseas teaching position for next year.

An article in the June 1959 issue of the *Phi Delta Kappan*, which you may have missed for one reason or another, provides one of the more complete analyses of this fast growing "inter-cultural" professional group.

In this article, titled "So You Want to Practice Your Profession Overseas?", **James W. Ramey** has compiled statistics and important data which should be read by any teacher who is considering an overseas assignment.

In addition to the more obvious information—applicants should be in good health since medical facilities are frequently lacking or available at considerable distance, and overseas jobs are rarely available on less than a two-year contract basis—Mr. Ramey has investigated the various positions available through the United Nations and lists the advantages and disadvantages of these positions.

Addresses to which applications for overseas teaching positions may be sent are included in this article and it is heartily recommended reading for all teachers who are even slightly interested.

■ A proclamation from **President Eisenhower** designated the week of November 8 through 14 as American Education Week. The President urged the public to display its pride in this primary instrument of democracy by participating in the activities in the schools. Throughout the country schools are holding open house for an estimated 26,000,000 parents and citizens who will study this year's theme, "Praise and Appraise Your Schools."

■ A report issued in late summer by the Institute of Administrative Research indicated that the public seems to be more interested in the kind of teachers a school has than in the kind of building that houses it.

The Institute is an affiliate of Teachers College, Columbia University. Its study was made in 40 school systems within a 50-mile radius of New York City. Members of boards of education, parents' organizations and civic groups were asked what characteristics made a good school.

The report showed that professional qualifications and personal qualities of teachers were more important to the average citizen reached in the study than any other phase of the school operation. Parents were particularly interested in the caliber of the teachers. This apparently was determined in their minds by whether their children found satisfaction or frustration in class.

The study also showed that many parents were completely detached from school affairs and judged the school entirely on the reaction of their own children. Some of the adults questioned said that they had not been in a school for 15 years or more. It was suggested that more "open house" days be arranged and renewed efforts made to interest adults, other than those connected with local school boards, in the affairs of the schools.

■ Recording for the Blind, Inc., is producing a series of 125 books for use by blind children in the Connecticut public schools. The non-profit organization, which provides educational material free of charge primarily to blind college students and adults, reports that this is the first time that a state agency has arranged with a national organization to produce textbooks for blind children on a statewide basis.

■ Tennessee's Oak Ridge Institute of Nuclear Studies will present two three-month training sessions in 1959-1960 for science specialists and secondary school teachers. Their basic purpose is to provide subject matter background in major scientific fields and methods of developing simple, low-cost demonstration materials and activities. The training offered in these sessions—September 28 to December 18, 1959, and January 4 to March 25, 1960—is equivalent to that developed for the "traveling teacher" program, now in its fourth year. This program provides opportunities for high school students and teachers all over the country to observe special science lecture-demonstrations in physics, chemistry, biology and mathematics. Nearly 150 itinerant teachers received training from the Oak Ridge Institute in this program during the current year.

■ Stumped occasionally by questions on space travel? A 72-page booklet on astronautics called the *Space Primer* has been published by Convair (Astronautics) Division of General Dynamics Corporation, builder of the Atlas intercontinental ballistic missile. The booklet prepared by the astronautics staff offers clear explanations of such subjects as rocket propulsion, the motion of satellites and the ways in which man can reach the moon and planets. The publication contains a glossary of rocket and space terms, a list of books and magazines on space, and a section on preparing for a career in austronautics. Single copies of *Space Primer* may be obtained by writing to Convair Astronautics Department 120, P.O. Box 1128, San Diego, California. Bulk quantities are available at a nominal charge.

■ Other space-age resource materials are available from **Meston's Travels,** 35mm color slide manufacturer of El Paso, Texas, which has announced the addition

of 40 official United States Air Force photos of launchings and pre-launchings taken at Cape Canaveral. These are historically valuable slides that many will want to see and keep. The original transparencies were made by official United States Air Force photographers in full color and with eye-witness realism. The 40 slides include the Convair, Thor, Explorer, Jupiter, Atlas, Vanguard, Redstone, Navajo, uno, Bomarc, Snark and Matador. For further information concerning these slides, contact Meston's Travels, Inc., 3801 North Pieras, El Paso, Texas.

Science education continues to be of primary concern and the recent 16,000 word report issued by **President Eisenhower's** Science Advisory Committee, headed by **James R. Killian Jr.,** President of the Massachusetts Institute of Technology, both asks and seeks answers to the question: "How can our American educational system be strengthened so that it will more fully meet the requirements of this age of science"

Education for the Age of Science, available through the U.S. Government Printing Office, views education as a national rather than a purely local concern. Maintaining that "the American educational system, fine as it is in many respects, can be and as a whole should be, substantially improved," this document, drafted by a nine-member panel headed by **Lee A. DuBridge,** President of the California Institute of Technology, concludes that "if education is to be qualitatively improved at all levels (in order to develop the well-trained minds our nation needs) a larger share of the

national effort and the national income must be devoted to it."

Noting that the United States at present spends approximately fifteen billion a year on formal education, or about four percent of the gross national product, the study holds that "if we wisely spent twice that much to achieve higher quality, it would be more than worth the cost. *Doubling our current annual investment . . . is probably a minimal rather than an extravagant goal.*"

Although advising that "very large national programs are called for, together with the best efforts of teachers, scholars, parents and citizens" and that "both financial and moral support of the community is therefore vital" *Education for the Age of Science* cites no specific methods for attaining this goal, an omission which drew fire from NEA spokesmen. ■

Polynesian

(continued from page 16)

human faces and masks elicited a positive response, particularly from the boys. The children were encouraged to become aware of the sources of designs in Polynesian art—the strong bent toward human, animal, plant and solar motifs.

When offered an opportunity to create their own such designs, the children were eager to get going. In keeping with interest aroused in Polynesian design, it seemed logical to attempt to produce a simulated bark cloth by use of stencil on brown paper toweling. Stencil-making also fitted into the general art development of the class, as the children had experienced other ways of duplicating designs, though not this one. Also the materials to be used are easily obtainable. As we were near the end of the school year, this was not only practical from the point of view of supplies but would give the children some skills they could use in their summer recreation, for all the materials used could be found in the average American home. Stenciling as a process comes close to the art of making the real bark cloth of the dwellers of the South Sea Islands. By using paper toweling for the "cloth" the children had a product that looked like bark cloth, too. The color we used was ordinary shoe polish in four shades of brown and a black, applied by means of the dauber usually used on shoes.

Making the stencil itself involves a problem in visualizing a design in its negative form. Some of the children could foresee this necessity once it was pointed out. A good number of children had to feel their way into making what they thought their design should look like, and then discovered by applying it that they really wanted its reverse form. This direct learning was a rather pleasant discovery for most of them, despite the fact that they had to cut a new stencil. They learned about leaving little bridges of paper to hold certain areas of design together. This was the busiest time for the teacher and art supervisor, for the children required individual attention at this point. After this very busy session, the rest of the project went along smoothly and rapidly, each person going on with his own ideas in the full confidence of proper know-how. Calendar sheets were found to make an excellent medium for stencil

paper. It was easily cut with scissors, held its form, was tough and withstood a good deal of use. Not only are such calendar sheets easily obtainable, but also expendable in this sort of experimentation.

In applying color to the stencil, no one seemed to have difficulty in learning to judge the right amount of polish for the dauber, and to gauge the lightness of stroke in brushing the dauber over the stencil to produce the design. One child coached the other.

It didn't take long for the inevitable question to pop up, "How can this design be applied to cloth?" First tries were made with textile paints on soft white rags, then tea towels, and finally designs were applied to shirts and blouses with complete confidence. The crowning joy came in making ready some lovely aqua-colored material for the teacher's own skirt. Each child took a turn at applying his design to it with white textile paint. Considering that the designs were made by so many individuals, it turned out very well.

The children showed that their new understanding of the art of Hawaii had influenced their own taste in those few short weeks. Several girls and boys had selected colored prints for dresses and sport shirts that were basically Polynesian in design. The children learned to discern these motifs in the materials around us and began to read newspapers and magazines with an intelligent interest in our now mutual tastes.

While there were many facets of design influences from Hawaii that were left unexplored, the children delved deeply enough to add to their aesthetic equipment, thus becoming aware of new aspects of their environment. ■

Glass Jewelry

(continued from page 8)

is present. This temperature varies with the kiln and kiln size and ranges from 1450 to 1650 degrees on the various kilns I have used. If no pyrometer is available one may look into the kiln at frequent intervals as it becomes red hot. If left in too long the edges of the glass become ragged, the design flattens out, and the wires sink in too far and the effect of the silver is lost. If not heated long enough, the sharp cut edges of the glass make the piece look "underdone". If the edges do become rough,

they can be smoothed over with a carborundum stick and running water. The dull edge thus formed can be polished with fine sanding and lastly tin oxide on a cloth or felt wheel or hand polished with a felt stick and polishing powder.

When the proper temperature is reached, the kiln is turned off and the door kept closed until the kiln is completely cold. In some kilns this is overnight and with larger ones and with larger pieces, 36 hours is required. Then no cracking will occur. Fast cooling causes the glass to crack and break.

The last step is to glue findings to the glass. The larger cup on earrings and cuff links will hold better than the smaller ones. The glue must be one that holds on a hard shiny surface. Of the many kinds I have tried, Weldit cement, a Singer Home Products glue, works the best.

A little experimentation with the firing is necessary but well worth the trouble. I have successfully put small pieces in a hot kiln, as for copper enameling, but gradual heating is necessary and may be accomplished by placing the rack on top of kiln or in front of open door for a few minutes before placing it in the kiln. Again slowly bring them out so as to cool as gradually as possible. There is some breakage in this method.

Recently sets of cuff links and tie clasps and earrings and pins were made by my class for a luncheon given for the Superintendent of Chicago schools and the Board Members by the Women Principals' Club. They proved to be colorful and original and were extravagantly admired by everyone. ■

Clay

(continued from page 24)

green ware is unfired clay and *bisque ware* is clay which has been fired one time. Spelling and pronunciation of the word *kiln* were discussed and all other terms were treated in a similar manner.

In beginning clay work, the children furnished their individual plastic bags in which they stored their clay from day to day. They were given clay tools, ice cream sticks, damp sponges and large squares of oilcloth (cloth side up) on which to work. They were eager to get their large balls of soft pliable clay. Some children experimented aimlessly, pinching, hitting and pulling

the clay, while others attempted to follow one of the methods that had been demonstrated. For all pupils this experimentation developed tactile sense and rapport with the material.

While the youngsters worked, instruction was given to individuals or groups who needed it. Most pupils proceeded with their sculpturing for a time and then would want assistance from the teacher. Often a small stroke, pinch, change in position of the clay or a word of encouragement gave pupils a new start and they would work with renewed interest. Often one individual's problem was applicable to the work of several. In these instances, the solution was shown to the entire class or to small groups.

After the students had spent several class periods experimenting with clay, they were encouraged to complete the sculptures and put them up to dry. We had an abundance of clay and children who worked fast made second pieces.

After the clay had dried several days, some of the children assisted in placing the green ware in the kiln. All pupils saw the kiln and we discussed how the high kiln temperature hardens green ware by removing the water content separating the tiny molecules of clay. Children were instructed to fire their green ware before glazing, and having a rather large kiln, we were able to fire many pieces at once. The capacity of the kiln we were using was approximately two cubic feet. A pyrometer attached to the kiln permitted us to observe the firing temperature. Firing was done very slowly over a period of six hours to approximately 1300 degrees F. The first two hours of the firing period the kiln remained partially opened to permit all steam to escape and to prevent green ware from cracking.

When pupils got their bisque ware sculptures back they were intrigued by the change in the clay. In preparation for glazing, the bisque ware sculptures were rinsed with warm water to clean the surface. Pupils had a choice of several colors of prepared glazes which were mixed with water and brushed on with large soft brushes. They were instructed to flow glaze on with full dripping brushes and to use as many colors as they desired. (Glazes used on a single piece must be of the same firing temperature.) Children were cautioned to keep the glaze off the bottom of their

sculpture in order to prevent its tick-ing to the kiln shelves during th sec-ond firing. Brushing on glaze wa con-tinued for several days until each pupil had completed the job. Pupils were anxious to know how the color and gloss finish would be accomplish l. At this time, we discussed the two main ingredients of glaze—silica and olor-ing chemicals. We learned that when the kiln reaches a certain tempe ature these ingredients react to the h t by fusing together like syrup and ch ging into deepened and intensified olors. It was explained that the kiln ould be turned off at this moment an that cooling should be done very s owly. Finished glazed pieces were sho n the children along with the explan ions, but some sixth-graders remaine con-cerned with the final outcome.

Although most of the youngsters lazed their sculptures, several of them axed their bisque ware with liquid flo wax and rubbed them with colored shoe polish. This treatment gave the culp-tures an interesting tone and soft uster.

The glazed sculptures were pla d on stilts in the kiln and were fired again to approximately 1500 degrees F. When it was possible, and from a safe dis-tance, pupils were allowed to peek at the glowing red of the hot kiln. We had to wait one day for firing and one for cooling. For the youngsters, this was a period of suspense and curiosity. All of us were eager for the first load to be finished. After two days, we opened the kiln to find beautiful and shining colors and the surprises that always await in a kiln of glaze ware. The kiln was left as we found it until many of the youngsters could see exactly how it looked when it was first opened. The children were gleeful when they could locate their own shining sculpture in the kiln!

The atmosphere of the art room crackled with excitement as one child after an-other received his finished sculpture and visibly showed his enjoyment of feeling the slick glossy surface of the finished glaze and thrilled at the inten-sified color the firing produced.

Many of the children shared their culp-ture with us for display while others felt an immediate personal attac ment to their art work and wanted to ake it home without delay. The fi ished sculptures were eventually taken home where they are a source of pri and enjoyment for their sixth-grade creators.

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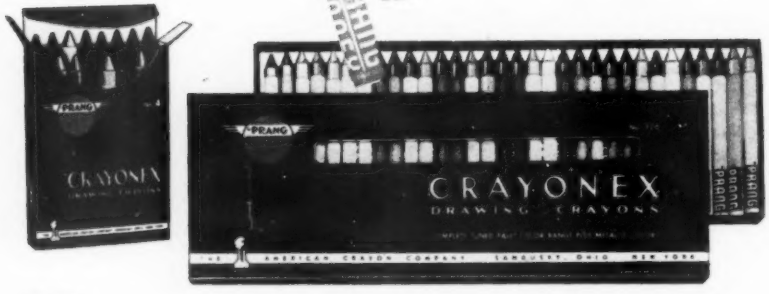

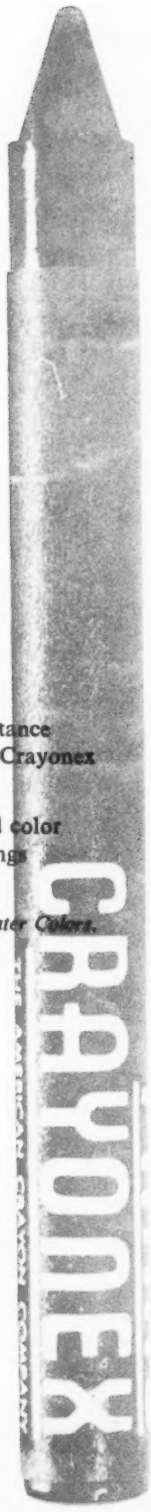

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